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Preliminary report on the faunal assemblage from Ndondondwane, Natal

by

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ABSTRACT

Faunal material from the 1978 excavations at Ndondondwane Early Iron Age site reveals a major dependence upon domestic animals for subsistence. Sheep remains outnumber those of goats, while small stock outnumber cattle. Unusual features of the collection are the very large numbers of bones of domestic dogs, several specimens of *Rattus rattus* and evidence for the presence of nyala far south of its present distribution. The site also yielded the first evidence for domestic chicken in an early context. The large number of hippopotamus bones suggests hunting or scavenging of these animals.

Apart from a number of bone tools and ornaments, the assemblage included portions of at least twenty-three ivory armbands and over a thousand pieces of waste ivory. These preliminary results indicate the tremendous potential of this unusual site.

INTRODUCTION

Faunal assemblages belonging to the earliest centuries of the Early Iron Age are fragmentary in nature and uncommon, the Magogo assemblage being an exception to this rule (Voigt 1984). By the time we reach the ninth and tenth centuries A.D. large faunal assemblages are available from excavations on a number of Early Iron Age (EIA) sites and the potential exists for a better understanding of Man/animal relationships during this period of time. Sites which fall into this time-span include Taukome and Toutswe in Botswana (Plug in press, Welbourne 1975), Pont Drift and Schroda in the northern Transvaal (Hanisch 1980) and Ntshekane in Natal (Maggs & Michael 1976). All these sites provide evidence for extensive settlements in which domestic animals play a prominent part and cattle in particular have begun to constitute a meaningful proportion of the assemblage.

The excavations at Ndondondwane by Maggs in 1978 (see Maggs 1984) and Loubser in 1982–1983 have produced two very large faunal assemblages. The faunal material is unusually well preserved and shows a number of interesting features.

Ndondondwane is an exceptional site in many ways, not least in its cultural and faunal yield. The full analysis of the fauna will give us a unique insight into the way of life of a river valley community in the eighth century A.D. The analysis of the faunal assemblage from 1978 is not yet complete. This report therefore only provides information on the fauna in very broad terms. The two assemblages from the site will be the basis for a larger research project by one of us (E.A.V.) in which the Ndondondwane fauna is to be compared with the material from the contemporary site of Schroda in the northern Transvaal.

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ANALYTICAL APPROACH

The analysis of the material is being undertaken using the same basic procedures utilised in the Department of Archaeozoology when studying other Iron Age assemblages. One of the authors (A v. d. D.) was specifically interested in investigating the feasibility of applying the criteria set out by Boessneck, Müller & Teichert (1964) to South African material using the resources available in the Transvaal Museum. The Ndondondwane assemblage was used as a test case, with interesting results. It is thus the first of our Iron Age assemblages in which we have been able to differentiate successfully between sheep and goats and to distinguish between male and female animals using criteria other than horncores and skull fragments.

The preservation of the material is such that a number of osteometrical studies are to be undertaken as part of the project. In addition to the basic analysis the nature of the combined excavations are such that, for the first time, we are going to be able to look specifically at the horizontal distribution of bone material in relation to different activity areas on a site.

All the detailed data sheets and record cards are housed at the Transvaal Museum. Part of the collection, consisting mostly of the ovicaprine material, is to remain at this museum on a loan basis to provide a reference base for future work on sheep and goats, but the major part of the collection is to be returned to the Natal Museum.

SPECIES PRESENT

Table 1 lists the species present in the main units of the 1978 excavation in terms of the number and weight of skeletal parts. No calculation of minimum numbers of individuals is given. The largest collections come from Levels 1 and 2 which could, for all intents and purposes, be considered as a single unit since Level 1 is the plough zone of Level 2.

Domestic species

Ndondondwane is one of the most interesting assemblages we have so far analysed because of the amount of detailed information we are retrieving with regard to domestic animals. The most obvious difference between this and other collections is the clear preponderence of sheep over goats in the identified ovicaprine material. It is possible (but unlikely, since sheep and goat bones should be equally vulnerable to smashing during butchering) that the goat material is so fragmentary that much of it is incorporated in the *Ovis/Capra* group, but in view of the size of the identified sheep sample it is very probable that these figures represent the likely proportions of the two species, ie. 459:47 or just a little less than 10:1. In the Magogo collection sheep were also the most common ovicaprine. It would therefore appear that the EIA communities in Natal held more sheep than goats in their flocks.

Measurements were taken wherever possible using the sheep and goat material, but these are not presented here. The initial impression is that many of the sheep are somewhat large and robust even when seen in comparison with the Pedi material available in the Department of Archaeozoology. In the goat material

TABLE 1

Nondondwane 78/31: provisional list of identified species in major features (Values given are numbers and weights (gm) of identified skeletal parts, not MNI counts).

Species	Provenance																	
	Level 1		Level 2		Level 2 RM		Level 2 RMSM		Level 2 UGM		Level 2 MGM		Level 2 MGL		Level 2 SWC		Total	
	No	wt	No	wt	No	wt	No	wt	No	wt	No	wt	No	wt	No	wt	No	wt
Domesticates																		
Canis familiaris (Dog)	24	40	60	240	11	40	2	10	0	—	0	—	3	20	2	20	102	370
Bos taurus (Cattle)	347	3740	489	11250	44	930	11	210	25	470	9	890	22	720	13	350	960	18560
Ovis aries (Sheep)	116	420	253	2610	45	480	5	70	19	180	0	—	14	120	7	60	459	3940
Capra hircus (Goat)	9	70	34	210	2	10	0	—	2	20	0	—	0	—	0	—	47	310
Ovis/Capra (Sheep or Goat)	463	1360	849	3700	103	440	6	40	11	50	4	40	17	60	5	20	1458	5710
Gallus domesticus (Chicken)	1	—	15	10	0	—	0	—	1	—	0	—	0	—	1	—	18	10
Total	960	5630	1700	18020	205	1900	24	330	58	720	13	930	56	920	28	450	3044	28900
Non-Domesticates																		
Canis mesomelas (Blackbacked jackal)	0	—	6	20	0	—	0	—	0	—	0	—	1	20	0	—	7	40
Ourebia ourebi (Oribi)	1	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	1	—
Tragelaphus angasi (Nyala)	3	10	0	—	0	—	0	—	0	—	0	—	0	—	0	—	3	10
Sylvicapra grimmia (Common duiker)	0	—	11	90	0	—	0	—	1	—	0	—	0	—	0	—	12	90
Pelea capreolus (Grey rhebok)	2	10	1	—	0	—	0	—	0	—	0	—	0	—	0	—	3	10
Redunca arundinum (Reedbuck)	1	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	1	—
Suid (Pig)	1	—	8	20	0	—	0	—	0	—	0	—	0	—	0	—	9	20
Hippopotamus amphibius (Hippopotamus)	26	400	73	2810	49	4170	2	60	1	100	2	70	17	1700	3	120	173	9430
Ivory fragments	450	310	1384	790	0	—	0	—	10	10	0	—	0	—	1	—	1960	1150
Lagomorph (Hare)	0	—	2	—	0	—	0	—	0	—	0	—	0	—	0	—	2	—
Thryonomus swinderianus (Cane rat)	2	10	2	—	0	—	0	—	0	—	0	—	0	—	0	—	4	10
Rattus rattus (House rat)	2	—	7	—	0	—	0	—	0	—	0	—	0	—	0	—	9	—
Other rodents	1	—	201	20	1	—	0	—	3	—	0	—	0	—	1	—	207	20
Struthio camelus (Ostrich)	1	—	1	—	0	—	0	—	0	—	0	—	0	—	0	—	2	—
Anas undulata (Yellow billed duck)	0	—	2	—	0	—	0	—	0	—	0	—	0	—	0	—	2	—
Other birds	0	—	8	—	0	—	0	—	0	—	0	—	0	—	0	—	8	—
Tortoise	4	—	0	—	0	—	0	—	0	—	0	—	0	—	0	—	4	—
Varanus sp. (Monitor lizard)	0	—	0	—	0	—	0	—	0	—	0	—	7	20	0	—	7	20
Crocodylus niloticus (Crocodile)	0	—	1	—	0	—	0	—	0	—	0	—	0	—	0	—	1	—
Other reptiles	1	—	28	—	1	—	0	—	1	—	0	—	0	—	0	—	31	—
Amphibians	0	—	36	—	0	—	0	—	0	—	0	—	0	—	0	—	36	—
Fish	0	—	46	10	1	—	0	—	0	—	0	—	0	—	0	—	47	10
Achatina immaculata (Land snail)	14	—	22	—	0	—	0	—	0	—	0	—	0	—	0	—	36	—
Unio/Aspatharia (Large freshwater mussel)	3	—	10	—	0	—	0	—	0	—	0	—	0	—	0	—	13	—
Nerita sp (Marine shell)	0	—	1	—	0	—	0	—	0	—	0	—	0	—	0	—	1	—
Limpet sp. (Marine shell)	0	—	1	—	0	—	0	—	0	—	0	—	0	—	0	—	1	—
Total	512	740	1876	3760	141	4170	2	60	16	110	2	70	25	1740	5	120	2581	10810
Total Identified material	1472	6370	3576	21780	346	6070	26	390	74	830	15	1000	81	2660	33	560	5624	39710

some specimens appear to be rather small, leading one of us (A.v.d.D.) tentatively to suggest the presence of a dwarf variety. This suggestion has some support since the Agricultural Services section of the Department of Co-operation and Development has recently located and acquired breeding stock of a dwarf variety of goat from the Ingwavuma area of northern Natal.

Cattle bones are well represented in the sample; many of these, particularly the extremities, are well preserved. The numerical sample suggests almost exactly a 2:1 ratio between ovicaprines and cattle. However the large size of cattle bones results in a greater degree of fragmentation in the marrow extraction process, resulting in a lower percentage of identified material. This factor is borne out by the MNI count available for Level 1 on the tooth age classes (Table 2) in which cattle and ovicaprines are equally represented. The horncore and skull remains present do not, on superficial examination, allow us to say anything about cattle breeds although some information on this aspect may emerge later. The best-preserved horncore is unfortunately very badly crushed and distorted but may yield some useful information. Again, measurements are being taken for comparison with Nguni and Pedi material.

TABLE 2

Ndondondwane 78/131 Level 1:
age classes of domesticates on basis of tooth eruption

Domesticate	Age class									Total
	I	II	III	IV	V	VI	VII	VIII	IX	
Ovis/Capra	4	1	7	7	6	2	—	—	—	27
Bos taurus	1	2	6	5	3	4	4	2	1	28

Dog remains are rare on Iron Age sites (see Voigt 1983:67–76). The Ndondondwane collection is unique in the large number (102) of dog remains. The postcranial material suggests a relatively small breed (A.v.d.D.); the possibility of confusion with jackal is ruled out on dental evidence and on the length/breadth ratios of long bones. The MNI count is relatively high. The fragmentary nature of the material and the presence of cut marks on a few of the bones raises the interesting possibility that dogs might also have been food animals.

The identification of domestic chicken is based on the presence of spurs and comparison with comparative material in Munich. If this identification is upheld it provides us with the first clear evidence for domestic fowl in southern Africa, and at an unexpectedly early date. A general impression indicates that the birds were relatively small (ie. smaller than a guineafowl). The date of introduction of fowls is one of our major problems, as is the date for domestic pig. Pigs are usually assumed to have been introduced by White settlers (dietary restraints on pork suggest recent introduction). Some suid postcranial material suggests that domestic pig might have been present. A paucity of comparative material (of both wild and domestic suids) is, however, causing problems in clarifying this point.

Wild Species

The list of wild species is limited and may prove to have the least variety of any Iron Age site. Ndondondwane can be described as a community which subsisted on large and small stock and on the hunting (or scavenging) of hippopotamus. The hippopotamus remains in the collection are quite remarkable; the presence of 173 identified skeletal parts which represent at least four individuals is a unique situation. The remains indicate at least one large adult specimen (probably a male), an average sized adult, a sub-adult and a younger animal. The animals are represented by a wide range of body-parts in this collection and by an additional group of body-parts in the 1982–1983 collection. The material is concentrated in Levels 1 and 2 and the Red Midden in Level 2, Square H10. The horizontal distribution of material is also very limited. Extensive butchering damage is visible on many of the bones; most of the material in the 1978 collection is from the axial skeleton. An unusual feature is the presence of the articulating bones of the extremities; the beautifully preserved foot shown in Fig. 1 is not only a tribute to the excavators but also a unique archaeozoological find.

Although the vertical and horizontal distribution of these remains has still to be studied the initial impression is of a 'dump' of *Hippopotamus* bones outside the main occupation area and close to a smelting area. This also happens to be at a point closest to the river, suggesting that no attempt might have been made to take the carcasses further into the settlement. Many of the bones are measurable;

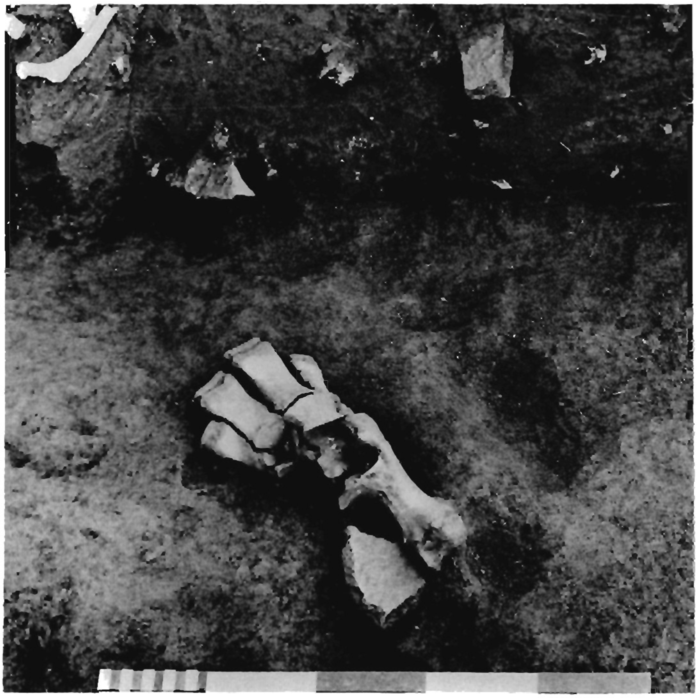

Fig. 1. Articulated hippopotamus right hind foot excavated from square H10 at Ndondondwane. (Photo—Tim Maggs).

and it is hoped that a metric study of the Ndondondwane material will soon be done. Nyala have, once again, been identified in a collection from the Tugela Basin (see also Klein in Maggs & Michael 1976 and Voigt 1984). These three records suggest very strongly that the Tugela Valley and its environs might have supported enough bush to provide a suitable habitat for this beautiful antelope far south of its present distribution.

Rodent bones are a persistent feature on most Iron Age sites. The large number (over 200) of rodent bones in Levels 1 and 2 is enough to suggest a relationship with man which might include a dietary contribution. The number of specimens of *Rattus rattus* is most surprising; the number given is based on nine skulls and mandibles so a misidentification is unlikely. The identification of house rat at Pont Drift in the Limpopo Valley indicates the presence of this animal in South Africa in the tenth century A.D., far earlier than was previously thought possible (Plug, Dippenaar & Hanisch 1979). The Ndondondwane material moves this date back into the eighth century, and raises the interesting question as to how this household pest could have reached the distant valleys of Natal at this early date. A specimen published as *R. rattus* in a faunal list from the even earlier site of Broederstroom 24/73 (Mason 1981:416) has subsequently been reidentified as *Cricetomys gambianus*.

Coastal contact involving trade with the outside world would be the most logical explanation for the presence of rats in the collection. Evidence for coastal contact exists in the presence of a single specimen each of *Nerita* sp. and a very small limpet (which may be *Cellana capensis* but is not well enough preserved to allow easy identification). Both these specimens could, however, have been collected on a Natal beach. No cowries are present in the faunal sample from 1978, but a few specimens have been identified in the 1982–1983 collection. Again, they might be identified as a local species or they may provide a very tenous link with the outside world which might in time have provided a route for *Rattus rattus*.

The reptile remains included fragments of snake, lizard and monitor lizard, while the fish remains have been provisionally identified as *Labeo*, *Barbus* and *Clarias*. The ostrich is identified on the basis of two fragments of eggshell. This is well out of the historical range for this large bird; it is not impossible that the fragments might have been collected on the higher altitude grasslands but it poses a similar zoogeographical problem to that presented by the nyala.

Ndondondwane has yielded a number of unusual cultural remains and appears to have been an exceptional settlement. In this regard the presence of very large quantities of small chips of ivory is extremely interesting. Most of the ivory consists of small flakes or cut fragments; it will be necessary to study it in detail to ascertain whether it came from elephant or hippopotamus. Some ivory from the latter species is definitely present. It appears that ivory was being worked into armbands, but the reason for so large a quantity of waste material is not at present clear; it far outweighs the previously recorded largest collection from the K2 portion of the Mapungubwe complex (Voigt 1983). Again the horizontal distribution of the material is very limited, suggesting a specialised activity area which, coincidentally, is close to the area in which the hippopotamus material was found.

ANIMAL HUSBANDRY

The age at death of *B. taurus* and *Ovis/Capra* specimens in Level 1 is given in Table 2. The age distribution for *B. taurus* is similar to that from other EIA sites, ie. a distribution across the age classes with adult breeding animals well represented. The proportion of animals belonging to Classes I to IV is marginally higher than on other sites but there is no bias towards juvenile animals. In the ovicaprine group there is no emphasis on younger animals; mature breeding animals form the major part of the sample. This is in direct contrast to the sample from Magogo, and may indicate a more stable situation with regard to domestic stock.

CULTURAL USE OF BONE

The 1978 assemblage contained a small number of modified bone pieces and the remains of several ivory bracelets as listed below:

Bone and Teeth

Level 1 G11	Completely polished piece of bone with circular section. One end broken, the other flat. Possibly part of a point or link-shaft.
E8	Incompletely polished piece of bone with circular section and flat unbroken end.
E12	Bone fragment with portion of marrow cavity preserved. One edge polished to give a rounded edge. Burnt.
	Fragment of bone shaped like a boomerang, surface covered with multiple cut-marks and striations. Possibly an unfinished 'tooth' (see below).
Level 2 I10/40–50 cm	Bone flake, one end broken, the other polished to form a blunt point with one convex and one concave face. Encrusted with ash.
I10/40–50 cm	Bone flake, one end polished to form a U-shaped point, other end broken.
I10/40–50 cm	Two bone flakes from large long-bone shafts. Both have been flaked, one of them to the extent that it has a scraper-like edge.
I10/40–50 cm	Bone flake with part of marrow cavity preserved. Lightly polished, one end a smoothed break, the other a rounded point.
I10/40–50 cm	Bov II sized rib with one end rounded from utilisation. This form of utilised bone is relatively common in Iron Age collections.
E8	*Canis mesomelas* right lower canine. Root perforated with very small hole for suspension. Very similar to specimen from Magogo.
H10	c.f. *Felis caracal* (Caracal) Left lower canine, root perforated with straight-sided hole for suspension.

G10, 30–40 Bone fragment shaped and polished to form a smooth segment in the form of a jackal tooth. Perforated with an hour-glass shaped hole through the 'root', this is a unique object in that the craftsman was copying a natural object in order to produce an ornament.

In addition there are distal humeri of a lagamorph and a jackal with holes just above the articulation. These apertures do however seem to be completely natural and not modified in any way. The above modified specimens are not listed in Table 1.

Ivory

Ivory is usually only present on Iron Age sites in the form of fragments of armbands. Exceptions to this are the sites of Ingombe Ilede in Zambia and K2, part of the Mapungubwe complex (Voigt 1982). In the assemblage from Ndondondwane were a number of ivory pieces as described below. Associated with them were a staggering 1960 fragments of ivory waste weighing 1 150 gm. Waste fragments are visible on the surface of the site as you walk across it; the main concentration of waste comes from Level 2 in Squares G9 (468 pieces) and G11 (231 pieces). It would seem that this material is the débitage from the manufacture of ivory armbands.

For the purpose of this report only those ivory pieces which have two opposing cut edges have been classified as armbands. A very large number of the ivory waste fragments have a single cut edge; it is very likely that most of them are fragments of armbands which have split parallel to the cut surfaces.

Voigt (1982, 1983) provides a review of the evidence for ivory armbands and suggested methods of manufacture. The majority of the waste pieces from Ndondondwane are very small and rather coarse-textured. It is hoped that microscopic work will be done on them in order to ascertain their origin (whether elephant or hippopotamus ivory). On superficial examination it seems likely that most of them are of elephant ivory.

The armbands fall into two groups: narrow and wide. Narrow bands appear to be more common on the earliest sites, and indeed the majority of the Ndondondwane armbands are narrow. Most have two flat edges and a relatively straight outer and inner surface. In some of the specimens, the criss-cross structure of elephant ivory is clearly visible.

There are the remains of at least twelve narrow armbands with a depth of 5–8 mm. Three of these have a carefully polished, convex outer surface. A fourth specimen appears to be an unfinished armband, as the outer surface is bevelled and has not been smoothed off. This specimen is very similar to that from Happy Rest (Voigt & Plug 1984) and Broederstroom (Brown pers. comm.). In this case striations similar to those visible on the tusk from K2 are clearly visible on the edges.

Three fragments of armbands of 22–32 mm occur in the collection; they are in a poor state of preservation but each has two flat edges.

The remains of seven deep armbands occur. Two of these fragments are very thin and curve against the grain of the ivory, presumably due to warping. This group varies from 39 to 51 mm in depth. One specimen has one smoothly polished slightly convex edge, while another has an edge with a V-section with the other edge flat. Although broken into several fragments, this specimen is the most complete.

In addition, there is a burnt fragment of an armband with a highly polished internal surface, and a very large piece 94,6 mm deep and 12,9 mm thick at the top but tapering down at the other end. The very large piece may be hippopotamus ivory.

Many of the armbands have split along the laminae, giving a total of 50 fragments of armband.

The Ndondondwane ivory is therefore characterised by very narrow armbands of fairly large diameter, although deeper armbands are also present. The narrow bands are much like specimens from other very early Iron Age sites.

This is the earliest collection of Iron Age ivory. The quantity of material involved suggests very strongly that the armbands were being made on the site. Is it possible that the exceptionally large quantity of chips is due to unfamiliarity with their material? Certainly the armbands lack the bold and carefully finished appearance of the K2 armbands. But they remain important as the first real evidence of a community in which ivory was being worked on a large scale as a raw material for ornaments.

CONCLUSIONS

Preliminary results indicate that the eighth century A.D. community at Ndondondwane was utilising both cattle and small stock as a major food source and that sheep were the more important source among the small stock. The possible presence of a dwarf breed of goat is still being investigated, as well as the rôle of dogs in the community. The faunal assemblage has also provided very valuable information on the presence of domesticates such as chickens and possibly pigs. The possible potential of hippos as a consistent food source requires further attention, especially as few other wild animals appear to have been hunted. Ivory working appears to have been one of the specialised crafts practised at Ndondondwane, and a study of the hundreds of ivory fragments may produce further useful information on the utilisation of this valuable raw material.

ACKNOWLEDGEMENTS

We are most grateful to Tim Maggs for making the Ndondondwane material available for study and for discussing the site and its problems with us. Val Ward organised and supervised the pre-sorting and marking of the material, which has made our task much easier. Our thanks are due to her and to those who assisted in the field and at the Natal Museum. We thank Eddie Watson for his assistance in sorting material at the Transvaal Museum, our other colleagues at the Museum who have assisted with identifications and Yvonne Swart who typed the manuscript. The South African Council for Scientific and Industrial Research provided the funding to bring one of us (A.v.d.D) to South Africa. It was a mutually beneficial visit and the Archaeozoology Department will continue to profit from the knowledge gained during the visit for many years to come.

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